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June 20, 2007

Chris Gekas
California Energy Commission
1516 Ninth Street, MS 25
Sacramento, CA 95814-5512

Re: Comments on the "Cool Roofing" Provisions of the Draft 2008 Building Energy Efficiency Standards Discussed at the June 13, 2007 Staff Workshop

Dear Mr. Gekas:

This Association represents professional roofing contractors in 14 Metropolitan San Francisco Bay Area counties. All of our members are signatory to Working Agreements with Locals 40, 81 and 95 of the Roofers Union and most of our member firms are small businesses. We are writing today to express our deep concerns regarding some of the "cool roofing" provisions contained in the draft 2008 Building Energy Efficiency Standards. In our view, rather than furthering the cause of increased energy consciousness and energy efficiency among contractors and building owners, these measures will, if adopted, have just the opposite effect and encourage an even greater level of noncompliance with the California Energy Code.

Draft Subchapter 6, Sections 149 (b) 1 B iv and 149 (b) 1 B v – OPPOSE

Draft subsections iv and v of Section 149 (b) 1 B establish new insulation requirements that are to apply when low-sloped non-residential or high-rise residential roofs are replaced. Specifically, these subsections provide that if the existing roof insulation is less than R-19, continuous insulation must be added above the roof deck. This insulation must have a minimum thermal resistance of R-8 in climate zones 1, 3 and 5-8 and a minimum thermal resistance of R-14 in all other climate zones. **We oppose these provisions and respectfully request that they be stricken from the draft.**

As was made clear in my own Workshop testimony, as well as that of Marty Dunham of Enterprise Roofing Service and several other speakers, the assumptions underlying the proposed roof insulation requirements are fatally flawed. In the first instance, it appears that **the number of subject buildings with existing roof insulation less than R-19 has been seriously underestimated.** Whereas CEC staff expressed during the Workshop a belief that "most" buildings have at least R-19 roof insulation, the judgment of experienced roofing professionals is quite the opposite. Most existing low-sloped non-residential and high-rise residential buildings do not, in fact, have roof

insulation of at least R-19. Accordingly, the impact of the draft proposal will be far more widespread than CEC staff has anticipated.

In a related vein, **the cost to building owners of installing additional insulation above the roof deck has also been seriously underestimated.** In calculating these costs, CEC staff both underestimated the price of the material itself (\$2.00+ per square foot) and failed to take account of serious cost and feasibility issues associated with installing insulation above the roof deck.

Adding R-14 of rigid insulation raises the surface of the roof about 3 ½ inches. In the abstract, 3 ½ inches may not seem like much. In actual practice, however, changing the level of the roof surface is often difficult, and sometimes is not possible at all.

As a number of roofing industry representatives explained during the June 13 Workshop, low-sloped roofs are typically designed as integrated systems, which consist not merely of roofing membranes, but also all manner of associated features and equipment, from drains, scuppers and vents to skylights and rooftop equipment to electrical and gas conduits. Among other things, raising the surface of the roof may require the relocation or replacement of existing drains and vents, the disconnection and reconnection of conduits, the removal and reinstallation of skylights and air conditioning units and the raising of equipment curbs. **The cost of making these alterations to the building may far outweigh any energy savings benefit to be derived from installing the additional insulation.** And as Building Official Jay Salazar pointed out in his Workshop testimony, in some cases **contractors and property owners cannot comply with the proposed insulation requirement without violating building codes and zoning ordinances** that limit the height of buildings and associated rooftop equipment.

In those cases where it may be feasible and cost-effective to add R-14 of insulation above the roof deck, **building owners will then find their roofing system choices limited -- or eliminated altogether -- by the operation of another aspect of the proposed insulation requirement.** In response to a question that I raised during the Workshop, CEC staff indicated that the proposed requirement for R-8 or R-14 insulation above the roof deck would serve as a minimum insulation standard upon which trade-offs between non-compliant roofing products and additional insulation would then be built. Where it might now take an addition R-10 of insulation to compensate for not using a compliant roofing product in climate zone 2, for example, under the draft proposal an additional R-24 would be required (new minimum R-14 + R-10 necessary for trade-off = R-24 total). **Such a draconian requirement compounds the cost and feasibility difficulties discussed above and in the process establishes a de facto “cool roofing” mandate. This is a recipe for noncompliance.**

One of the hallmarks of the 2005 Energy Code is that it offers multiple pathways for achieving energy conservation. The owner of an existing low-sloped non-residential or high-rise residential building can choose to have a compliant “cool roof” installed or

can opt instead to have a non-compliant roof installed along with additional insulation. In most cases, the options are feasible and affordable and building owners can make real choices. **Raising the roof insulation bar to an R-8 or R-14 minimum, however, will in many (if not most) cases offer building owners alternatives to “cool roofs” that are either prohibitively expensive or infeasible.** These are not “alternatives” in any meaningful sense of the word. **Rather than simply acquiesce to losing their freedom of choice, many building owners will probably elect to ignore the Energy Code and install the roofing system they prefer.** Such actions hardly serve the cause of energy conservation.

A representative of the California Building Industry Association said during the Workshop that a recent study concluded that non-compliance with the 2005 Building Energy Efficiency Standards is widespread. This would tend to confirm our suspicions about compliance with the “cool roofing” provisions, which are neither well understood by roofing contractors nor consistently enforced by building officials. Given this reality, it seems to us that there are far more energy savings to be realized by increasing compliance with the existing “cool roofing” provisions than by adding draconian insulation requirements that are either infeasible or so costly as to encourage even more widespread noncompliance. Accordingly, **we respectfully request that subsections iv and v of Section 149 (b) 1 B be stricken from the draft and that they not be incorporated into the formal rulemaking proposals for the 2008 California Energy Code.**

**Draft Subchapter 2, Sections 118 (i) 1, 118 (i) 2 and 118 (i) (3) –
OPPOSE UNLESS AMENDED**

Although a distant second to the concerns raised above regarding the draft roof insulation requirements, we are also troubled about the draft provisions contained in Sections 118 (i) (1), 118 (i) (2) and 118 (i) (3), which pertain to aged reflectance and emittance values of roofing products. As drafted, these provisions appear to effectively prohibit the installation of a wide range of non-certified or non-compliant roofing products. **We oppose these provisions in their current form and request that they be amended.**

Section 118 (i) 1 sets forth requirements for the thermal emittance and aged solar reflectance of roofing products. As drafted, the Exception to Section 118 (i) 1 provides that roofing products that are not certified according to Section 10-113 shall assume specified default aged reflectance/emittance values. The listed values are 0.08/0.75 for asphalt shingles, 0.10/0.75 for metal tiles and 0.10/0.75 for concrete and clay tiles. No default values are listed for any other type of roofing product. **Unless such values are**

specified, all other non-certified roofing products will effectively be banned because without default values, insulation trade-off calculations cannot be made.

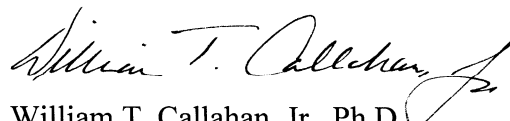
At first glance, Section 118 (i) 2 seems to offer a partial solution to this dilemma by providing a formula for calculating the aged reflectance value of roofing products for which Cool Roof Rating Council (CRRRC) aged reflectance data are not available. Unfortunately, the formula derives the aged reflectance value from the CRRRC initial reflectance value. Hence, the formula is of no utility for calculating the aged reflectance value of a roofing product that has not been tested at all.

Section 118 (i) 3 suffers from a similar shortcoming. It allows the Solar Reflectance Index (SRI) to be used as an alternative to solar reflectance and emittance, but one of the variables needed to calculate a roofing product's SRI is its aged reflectance. It is not possible to calculate SRIs for roofing products that have not been certified and that do not have default aged reflectance values.

Based on the staff presentations made at the June 13 Workshop, it does not appear that it is the CEC's intent to ban any particular type of non-certified roofing product. Nevertheless, as they are currently drafted proposed Sections 118 (i) 1, 118 (i) 2 and 118 (i) 3 have precisely this effect. Default reflectance and emittance values are not provided for non-certified roofing products other than those which are numerated in the Exception to Section 118 (i) 1. Nor do Sections 118 (i) 2 and 118 (i) 3 provide any means of calculating values for such products. Without these values, insulation trade-off calculations cannot be made, which in turn means that these non-certified roofing products cannot be installed. **We respectfully request that you correct this defect by amending the Exception to Section 118 (i) 1 to specify default aged reflectance and emittance values for all types of roofing product, not just asphalt shingles, metal tiles and concrete and clay tiles.**

Thank you for the opportunity to participate in the June 13 Staff Workshop and to submit these comments and suggestions. If you have any questions, please feel free to contact me by telephone at (510) 635-8800, extension 344, or by e-mail at director@arcbac.org.

Sincerely,



William T. Callahan, Jr., Ph.D.
Executive Director